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Final Year Project Report ☒

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**DESIGNING A NEW INTERFACE FOR NON-CULTURAL INFLUENCE TOURISM
MOBILE APPLICATION**

JAMIE FOO XUET PHING

This project is submitted
in partial fulfilment of the requirement for a
Bachelor of Science with Honours
(Cognitive Science)

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The project entitled ‘Designing a New Interface for Non-Cultural Influence Tourism Mobile Application’ was prepared by Jamie Foo Xuett Phing and submitted to the Faculty of Cognitive Sciences and Human Development in partial fulfillment of the requirements for a Bachelor of Science with Honours (Cognitive Sciences)

Received for examination by:

(Mdm. Wan Norizan Wan Hashim)

Date:

Grade

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ABSTRACT

The mobile tourism application is gaining its popularity in the tourism industry.

Internationalization is also getting more important as it design to cater for users of all nations and cultures. Designing a usable yet universal interface mobile application for the tourism industry is of the essential as many users are downloading travel related applications into their mobile devices. The aim of this study to design an international interface which was investigated on the users' preference for the selected design elements based on the existing design interface that was culturally influenced. The focus design elements of this project will be on colour, layout and navigation. The result from data collection process will be analysed using the Friedman Test which gives the mean rank which were first collected using the Semantic Differential scale questionnaire. The analysed data suggest on the preference of users on the three design elements. A prototype is developed based on the proposed guidelines.

Keywords: mobile application, tourism, culture, interface design, colour, layout, navigation, prototype

ABSTRAK

Aplikasi pelancongan telefon bimbit semakin popular dalam industri pelancongan. Pengantarabangsaan atau “Internationalization” juga menjadi semakin penting kerana ia dibentuk bagi memenuhi keperluan antarabangsa terutamanya untuk pengguna yang berbilang kaum, bangsa dan budaya. Mereka “interface” yang bukan sahaja berguna malah yang bersifat antarabangsa merupakan satu keperluan kerana ramai pengguna akan menurunmuatkan aplikasi yang berkaitan dengan pelancongan ke dalam peralatan elektronik mobil masing-masing. Tujuan kajian ini adalah untuk merekabentuk “interface” yang mempunyai tahap antarabangsa dengan melalui siasatan daripada pengguna bagi elemen-elemen reka bentuk yang dipilih berdasarkan “interface” yang sedia ada malah yang mempunyai pengaruh budaya. Focus elemen reka bentuk untuk projek ini adalah pada warna, susun atur dan navigasi. Hasil daripada proses pengumpulan data akan dianalisis menggunakan Friedman Test yang memberikan “mean rank” yang dikumpul terdahulu dengan soal selidik menggunakan skala “Semantic Differential”. Data yang dianalisis mencadangkan pilihan pengguna dalam ketiga-tiga elemen reka bentuk prototaip turut akan dihasilkan berdasarkan garis panduan yang dicadangkan.

Kata kunci: aplikasi telefon bimbit, pelancongan, kebudayaan, reka bentuk “interface”, warna, susun atur, navigasi, prototaip

CHAPTER ONE

INTRODUCTION

Overview

This chapter mainly discusses on the overall details of this study. The contents that will be covered are the background of the study, problem statement, purpose, objectives and research questions to be achieved in this study. Definition of terms, conceptual framework, and significance of the study as well as scope of the study and limitation of the study will also be explained in this chapter.

Background of the study

In the industry of tourism, its connection with the information technology is unavoidable as this connection assists in manipulation of propagating the large amount of information. The continuous development and expansion of the Information Communication Technologies (ICTs) has certainly brought huge revolution to the people's life. The ever advancing technology of mobile devices like smartphones and tablets has helped to improve one's lifestyle. For the past decade, the tourism industry had to deal with new challenges as well as changes where the biggest part of the process is influenced by ICTs. It is also undeniable that ICTs play an important role for the growing and development of tourism industry as well as one of the influential factors which contribute to the change in travellers' behaviour (Shanker, 2008; Economon, Gavalas, Kenteris, & Tsekouras, 2008).

A lot of the web based applications were transferred into the mobile devices platforms (Vithani & Kumar, 2014). Tourism website has slowly developed and evolved yet another form of information channel. Instead of just being able to be viewed from desktop or laptop, or in mobile web, there is another form where tourism of all different countries could be promoted, which is through mobile application. It is estimated that by 2014, the use of the

traditional computer internet will be exceeded by the usage of internet through mobile (Hanrahan & Krahenbuhl, 2012).

Gone were the days where travellers use travel tools like guidebooks, maps and any sort of static form of information to assist them while travelling (Radha & Dasgupta, 2012). Mobile application, generally known as Apps is now an indispensable tool for both the tourism industry and also for the travellers (European Commission, 2014). Now, with just one suitable tourism application with all the necessary tools and information, it has sufficiently replaced all those traditional travel tools which are thus more convenient to travellers. This has promoted the increasing usage of mobile application in the tourism sector (European Commission, 2014).

A proper planning is a must to have an enjoyable and smooth holiday. While planning for a trip or during the pre-visit, many tourists will use the web base tourism website to achieve this tasks. Before their departure, many of the travelling decision-making is done through tourism website, proven through previous tourism research (Zhou & DeSantis, 2005). Nevertheless, this may not be the case when tourists need some information while they are travelling or on-the-go. It is a must to have internet connection for using the tourism web site but not necessary for mobile tourism application. Most of the mobile tourism application could be used without the need of internet connection up to a certain level. Unless the location function is used, a non-connected-to-internet mobile tourism application is sufficient enough to provide immediate information to tourists during on-the-go.

It is no surprise that many countries have launched an official tourism application specifically to promote their country and also to help tourists who are visiting and those who are planning to visit (Hanrahan & Krahenbuhl, 2012). Considering the ranking of travel-related applications which is the 7th most downloaded type of application, it clearly shows the

importance of tourism application in promoting one's country (Mickael as cited in Kennedy-Eden & Gretzel, 2012).

Figure 1 shows the travel vertical among the top ten global brand verticals. As the 7th largest brand vertical, the category “travel” has maintained this position for the past two years (Millennial Media, 2013).

VERTICALS	RANK
 ENTERTAINMENT	1
 RETAIL	2
 TELECOMMUNICATIONS	3
 FINANCE	4
 CONSUMER GOODS	5
 AUTOMOTIVE	6
 TRAVEL	7
 TECHNOLOGY	8
 PHARMACEUTICALS	9
 EDUCATION	10

Figure 1. Top Ten Global Brand Verticals

Figure 2a and 2b shows the statistics of the downloaded mobile application based on category for Apps Store and Play Store (Adapted from <http://www.slideshare.net/AppStudioz/mobile-app-trends-worldwide-2014>).

In Figure 2a, it can be seen that among the 15 categories of applications downloaded by Apple users, applications with travel-related is placed among the top 10.

As for Android users, Figure 2b shows the statistics of 11 categories application for both paid and free applications. Travel-related application once again placed among the few top placing. In fact it could be said to have placed among the top 5 placing.

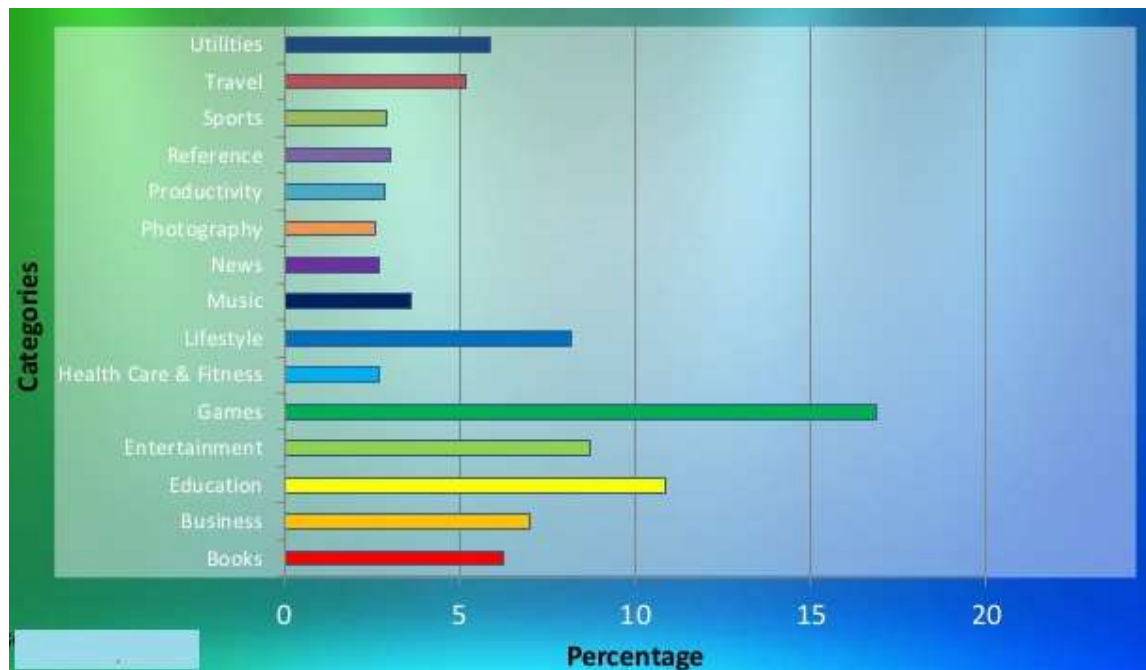


Figure 2a. Top categories on Apps Store

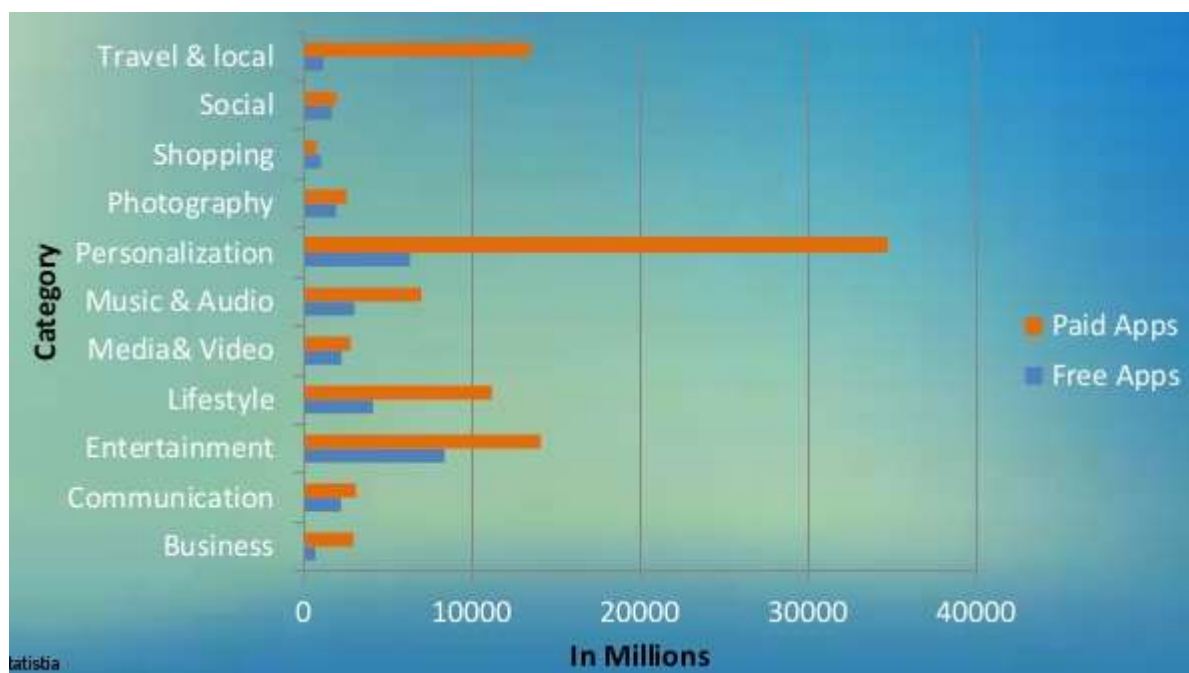


Figure 2b. Top categories on Play Store

Despite the many tourism applications that are available out there, people will choose to download the official tourism application of the country they plans to visit as all the information are posted with government approval. This allows the tourists to travel in a non-

worry manner because they know that all information posted is reliable instead of some unofficial website that might give false information.

The purpose of mobile tourism applications is just the same as the tourism websites. It is to provide the users with the convenient traveller-centred information and to communicate with the users. It is expected that many travellers from many different foreign countries and regions will use the mobile application and thus it should be properly design (Zhou & DeSantis, 2005).

Question like “Which strategy is to be used when accommodating for international users?” is a very common and basic question. Internationalization technique provides just a single site that is globally accepted to support all users. The word globalization is also used sometimes which refers to the same concept (Ishida & Miller, 2005; Nielsen, 2011). In total contrast, localization technique only focus on the targeted audience thus offers a local sites for that specific culture (Nielsen, 2011).

Designer of the mobile application can either choose to localize or internationalize the design of the mobile application. Nevertheless, the idea of localization in tourism scope may not be very successful as this method only focus on specific target group and there is also no focus to unify all the audience (Gould, Zakaria, & Yusof, 2000). Right from the start of the designing process, cross-cultural designs should be considered and not left until the end of the process like just simply translating the content into the intended language (Zhou & DeSantis, 2005).

Intercultural communication or cross-cultural communication is important for a successful website and is also applied on mobile applications (Adler, 1997). The terms “intercultural communication” and “cross-cultural communication” are used when both recipient and sender of the message are from different cultures (Adler, 1997). Anthropologists

Edward T. Hall and Geert Hofstede are those that conducted most research in the area of cultural differences in communication (Gamsriegler, 2005). The findings of Hall and Hofstede provide an insight and basis for analysing web site which is also useful for mobile application design. Using the cultural dimension proposed by both anthropologists allows researcher to systemize cultures into different categories. Previous research on identifying the relationship between visual presentation and Hofstede's cultural dimension and Hall's cultural dimension on visual web design were carried out (Wurtz, 2006). Similar studies including that of Marcus and Gould (2000) and Sheridan (2001). In this study also, culture dimension by both Hofstede and Hall are used to identify the culturally influenced tourism mobile application.

This study aims to investigate on the selected elements of the interface design that is preferable by users among the many existing design interface. Some examples of countries with different culture that owns tourism mobile application that are culturally influenced are Abu Dhabi, France and South Korea.

Problem Statement

According to the survey from Trip Advisor, the world's largest travel site, in 2011, nearly 40% of the respondents use mobile devices to plan trips and more than half of the mobile phones users, which is about 60% of it have travel-related mobile applications downloaded in their device and uses it (Mickaiel as cited in Kennedy-Eden & Gretzel, 2012). Many different audiences from all over the world with different culture will download the tourism mobile application if they have the intention of visiting that country or for any other purposes. However, it does not indicate that people from different cultures will perceive the same information in the same way (Tsai, 2009). Differences in values, preferences and general cognitive processes actually do exist in people from different culture according to the research of psychologists (Tsai, 2009).

According to Cyr and Trevor-Smith (2004), the degrees of differences in design are found in culturally diverse groups. Cultural aspects have much influence on the interface design of one's website and now including the mobile application. It is thus important for the designer of mobile application to be sensitive of the cultural differences that the design may pose which may offend its users and also to avoid any misinterpretation (Webb, 2013). Lack of understanding in the cultural differences issues can influence the successfulness of one's design. Imagine a website or mobile application which makes wonderful language translation but fail miserably in accommodating the other design elements like the navigation method or the mental model to a wide variety of audience. There should be solution to these problems otherwise the impact will be none other than offending the users and causing the decrease of users (Shah, 2013; Webb, 2013).

It is undeniable that many designers do actually pay attention on the designs like colours, metaphors and patterns of argumentation when engaging with multiple audiences in a single nation or culture. Unfortunately, when the situation is replaced with national audiences from different nations and cultures, the range of variations seems to see no boundaries and endless. As a consequence of that, it leaves the designers without a proper guide (Gould, Zakaria, & Yusof, 2000).

Numerous researches that were done on cultural influence interface design mostly focuses on the localization techniques. (Cyr & Trevor-Smith, 2004; Ahmed, Mouratidis, & Preston, 2008; Gould, Zakaria, & Yusof, 2000).

Research done by Hsieh, Chen and Hong (2013) quoted from Hofstede suggesting that in order to cater for diverse cultural market, localization techniques is the strategy to develop the global market. However, as mention earlier, a localization technique may not work well if the targeted audience is wide and involves those from different cultures and nations.

According to Nielsen (2012), an internationalized site is always needed and in this case, an internationalized mobile tourism application. It is not possible to have a localized design for every country in the world. Even the biggest company in industry could not afford to do this and this also applies to the government. There are still plenty of small countries that are neglected even if one chooses to localize for the big and important countries like Australia and China. In tourism industry, even audience, which refers to the users of the mobile tourism application from the smallest country should be taken into consideration too and thus considered also as the targeted audience.

A successful universal interface design that target for international audience goes beyond in just translating the text and changing the format of the date, time and number accordingly. There are actually a wide range of design elements to be considered also during internationalization and localization. However, when designers actually looked into these elements, only certain elements will be focused and overlooking the rest. The elements that are usually focused on are text and formats (Russo & Boor, 1993).

Even though the culturally influenced design elements of a tourism mobile application could not be fully eliminated, it is also important to made some of the elements to be universal so that it could be accepted by people of all cultures and not feeling uncomfortable while using the mobile application like the definition of Universal Design which takes into account the widest possible range of the end users that may use the design (Akoumianakis & Stephanidis, 1989). Images and content of the application is important in promoting one's country but elements like colour usage, navigation style and layout pattern should be made universal in order to satisfy the users and not offending them.

Research Purpose

This study aims to propose a universal guideline for the interface design of mobile tourism application. The investigation is done on the users preference design interface for the selected design elements based on the existing design interface of the culturally influenced tourism mobile application.

Objectives

The objectives of this study are

- i) To investigate users' visual perception towards the culturally influenced design features of the interface design.
- ii) To design a new interface based on the selected design elements for tourism mobile application.
- iii) To undergo usability evaluation of the newly developed prototype.

Research Questions

This study is designed to answer the following research questions

- i) What are users' visual perceptions towards the culturally influenced design features of the interface design?
- ii) What are the design characteristics of the new interface based on the selected design elements for tourism mobile application?
- iii) What are users' feedbacks on the prototype developed using the newly formed interface?

Definition of terms

There are two sections under the definitions of terms namely, conceptual definitions and operational definitions.

Culture

Conceptual Definitions

The term culture could be uncoiled into traditional behaviour which evolved by specific human race and is passed on from one generation to another generation (Mead, 2002).

Operational Definitions

In this study, the different aspect of culture will be analysed through three different interface design elements which they are colour, layout and navigation.

Internationalization

Conceptual Definition

Design and development of not only products but also the applications and documents that allow smooth localization for audience from different culture (Ishida & Miller, 2010).

Operational Definition

In this study, the proposed design guidelines will be based on the internationalization concept to cater for wide range of audience as well as for universal design purpose.

Tourism

Conceptual Definitions

This term does not restricted to only recreation activities. It consists of activity where traveller visits a place or stays at a place which is not in their normally same environment. The visiting to other places could be of many purposes like business, leisure and many more (Australian Bureau of Statistics (ABS), 2010).

Operational Definitions

In this study, the tourism industry is chosen to be the scope of the investigation.

Mobile Application

Conceptual Definitions

Mobile applications are a set of program which will be able to perform a specific task according to its function and it is mostly capable to operate on mobile devices like smartphones and tablets (Islam, Islam, & Mazumder, 2010).

Operational Definitions

Mobile application is the main independent variable in this study. This variable is used to achieve the objectives.

Tourism Mobile Application

Conceptual Definitions

It is a software program that helps the user to do things like travel planning, route mapping and supplying some useful information. It fits mostly all travel requirements which offers end to end solution (Momin, 2014).

Operational Definitions

In this study, tourism mobile applications from different countries bearing different culture are used to investigate users' visual perception towards the interface design.

User Interface Design

Conceptual Definitions

User interface is the part where the systems act as a communicator between the system and the users. Aspects and elements of the system that is visible to the users, falls under the design of the user interface (Jacob, 2000).

Operational Definitions

Users' visual perception are analysed through the interface design of the tourism mobile application. Three elements of design will be examined in this study namely colour, navigation and layout.

User Experience

Conceptual Definitions

User experience could be simplify to the overall experience of user when come in-contact with the system or product for some time or after a period of time. The satisfaction level and users' perception of the product or system is important as it influences the overall user experience (Bergersen, 2004).

Operational Definitions

The overall user satisfaction and perception is taken into consideration when participants are asked to evaluate the tourism mobile application and fill in the questionnaire after encounter with the applications. Participants are once again asked to evaluate after the prototype is developed.

Significance of the study

Many researches were done on the interface design of webpage however, not many were done on interface design of mobile application. It is even rare to find studies done on the cultural influence on the mobile application interface design. The scope chosen for this study is tourism. Tourism could not be separated completely with the cultural aspect. It is thus could not be denied that there may be cultural influence in the design. However, to accommodate users from all over the globe, at least some of the design elements are to be created according to universal preference. So, the importance of this study is to propose a design interface guideline that is not culturally influenced in the design through colour, navigation and layout.

Scope of the study

The scope of this study only pays attention to the official tourism mobile application launched by the government. The chosen application also has to be culturally influenced in terms of the three design elements. The three design elements that are analysed are colour, navigation and layout.

Summary

The main idea of this study has been discussed in this chapter. In the following next few chapters, the detailed previous research, methods and findings will be discussed.